Course Policy

Department	Information Technology
Faculty	Computer Science
Course Code	
Course Title	Linux Administration
Credit hour	3
Pre-Requisite	Data Comm and Computer Networking
Course Instructor	Baitullah Malakhil
Text Book	Red Hat System Administration I, II & III
Reference Book	Red Hat System Administration I, II & III

1. Course Description:

This course will equip the students with the RHEL7 administrative skill. The course has three main phases which start with the basics of the course then to the medium level and finally the advance RHEL7 administrative tasks. The course is about 90% practical.

2. Course Learning Objectives (CLO):

1. Understanding the philosophy of open source and introduction to RHEL7 OS
2. Basic Linux commands using Bash shell of RHEL7
3. Working with files/ directories and users/groups account management
4. Working with RHEL7 firewall and setting up network connections
5. Setting up yum server
6. Installation and configuration of Samba server, vsFTP server, DHCP, DNS Server
7. Working with NTP and apache web server

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3. Learning Domain:

- Cognitive (knowledge)
- Affective (Attitude)
- Psychomotor (Physical or Manual skills)

Only cognitive domain is used for this course while the rest two cannot applied here

4. Course Learning Objectives Mapping with Bloom Taxonomy:

1) Remembering
2) Understanding
3) Applying
4) Analyzing
5) Evaluating
6) Creating

COLs	1	2	3	4	5	6
CLO1	True	True	True			
CLO2	True	True	True			
CLO3	True	True	True			
CLO4	True	True	True			
CLO5	True	True	True			
CLO6	True	True	True			
CLO7	True	True	True			

5. Course Teaching Methods

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1	Lecture
2	Problem solving Learning
3	Interactive Learning
4	Practical sessions

6. Grading Scheme

Mid Term	20%
Assignments	10%
Quiz	10%
Final Term	60%

7. Weekly Course Breakdown:

Week	Topic	Objectives	Activities	Assessment	
1	Introduction of the course: - Open source vs non-open source software - Philosophy of open source software - Open source software usage - Introduction to RHEL7 desktop environment - RHEL7 installed - RHEL7 terminals - Bash shell - Executing commands using bash shell - Basic commands - RHEL7 file system hierarchy	-Understanding the course outline and objectives -Philosophy of open source -Applications of Opens source software -Introduction to RHEL7 and Redhat certifications	-Q&A session with students	Oral assessment at class	

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2	**Managing files** - Creating directories and files - Copying directories and files - Moving directories and files - Renaming directories and files - Deleting directories and files **- COMPUTER LAB (STUDENTS PRACTICE)**	- working with files in Linux	Practical session with students	Oral assessment at class	
3	**Getting Help in Linux & working with files using vim and gedit editors:** - Getting help using man command - Getting help using –help command - Getting help using pinfo command - SoS Report - Viewing & creating files with cat command - Editing files with vim editor - Editing files with gedit editor **- COMPUTER LAB (STUDENTS PRACTICE)**	- Understanding how to get help in bash shell. - Working with vim and gedit editors	Practical session with students	Oral assessment at class	
4	**local users and groups and Managing files & folder permission** - Local users and groups in Linux	-Local user and group accounts management in Linux	Practical session with students	Oral assessment at class	

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	- Creating users and groups - Deleting users and groups - Adding users into groups - User ID and Group ID in Linux - Resetting users password - Password policies - **COMPUTER LAB (STUDENTS PRACTICE)**				
5	**Managing files & folder permission** - Default file and directory permission - Setting file and directory permissions - Modifying files and directory permission - Setting umask value - **COMPUTER LAB (STUDENTS PRACTICE)**	-Working with file and directory permissions in Linux	Practical session with students	Oral assessment at class	
6	**Displaying Linux Process:** - Displaying Linux process using different commands - Working with Linux processes & Killing Linux Processes - **COMPUTER LAB (STUDENTS PRACTICE)**	-Working with Linux Processes	Practical session with students	Oral assessment at class	
7	**Services & Daemons plus logs & yum server:** - Viewing Linux services - Starting, stopping, restarting, disabling, enabling services	-Handling Linux services	Practical session with students	Oral assessment at class	

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	- Viewing Linux logs using different commands - Installing, uninstalling and updating software using yum - **COMPUTER LAB (STUDENTS PRACTICE)**				
8	**Managing RHEL7 Networking & SSH configuration** - Viewing the current IP add of the system - Setting dynamic IP address - Setting static IP, DNS server IP and default gateway - Editing the ip configuration file - Different usage of the nmcli command - Setting hostname and viewing hostname configuration file - Configuring SSH - Access remote system using SSH - **COMPUTER LAB (STUDENTS PRACTICE)**	-Networking in RHEL7.	Practical session with students	Oral assessment at class	
9	**Copying files between systems & controlling access to the files** - Copying files between systems using scp - Access Control List (ACL)	-Copying files between two Linux systems	Practical session with students	Oral assessment at class	

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	- Securing files with ACL - Interpreting ACLs - **COMPUTER LAB (STUDENTS PRACTICE)**				
10	**Managing SELinux security** - SElinux - Changing SELinux modes - Changing SELinux Booleans - **COMPUTER LAB (STUDENTS PRACTICE)**	--Working with SELinux	-Practical session with students	Oral assessment at class	
11	**Managing & sharing files with NFS** - NFS installation - NFS configuration - Managing files with NFS - **COMPUTER LAB (STUDENTS PRACTICE)**	-Working with NFS server	Practical session with students	Oral assessment at class	
12	**Managing Firewall & Network Port Security** - Checking Firewall status - Firewall zones - Allowing or blocking services in firewall - Allowing or blocking port numbers in firewall - Port-forward configuration - Creating rich rules in firewall - Assigning different NICs into different zones - Working with firewall service - **COMPUTER LAB (STUDENTS PRACTICE)**	-Working with Linux Firewall	Practical session with students	Oral assessment at class	

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13	**Installation and management of DNS server** - What's DNS sever - DNS server installation - Editing DNS zone files - Adding DNS records into DNS zone files - DNS uninstallation - **COMPUTER LAB (STUDENTS PRACTICE)**	-Understanding the concept of FTP -Working with FTP	Practical session with students	Oral assessment at class	
14	**Apache Web Server:** - what is apache web server - Apache HTTPD - Installation - Uninstallation - Working with DHCP configuration file - **COMPUTER LAB (STUDENTS PRACTICE)**	-Installation and configuration of apache web server	Practical session with students	Oral assessment at class	
15	**Mail server configuration:** - what's mail server - mail server installation - mail server uninstallation - **COMPUTER LAB (STUDENTS PRACTICE)**	-Postfix installation and configuration	Practical session with students	Oral assessment at class	
16	**DHCP Server:** - DHCP - DHCP server installation - DHCP Server Configuration - DHCP Server uninstallation	-Working with DHCP Server	Practical session with students	Oral assessment at class	

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	- **COMPUTER LAB (STUDENTS PRACTICE)**				